CAT 2- VIRTUAL REALITY

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VIRTUAL REALITY: TRANSFORMING OUR DAY TO DAY LIVES

Co-operative University Guest Talk:

What is Virtual Reality? What do we need for it? What is the impact of Virtual Reality, and it's significance?

Virtual Reality is a simulated experience that uses technology to create immersive, interactive environments.

Types of Virtual Reality:

Fully Immersive- where a user is surrounded full by a 3D environment(fully immersed)

Semi-Immersive- partially surrounded and aware of the real environment

Non-Immersive- user is fully aware of his real surroundings in real time

EXPLORING VIRTUAL REALITY

- ***Key Components of Virtual Reality***

1. Headsets
2. Controllers,
3. Sensors
4. VR software.

RELEVANCE OF VR IN CURRENT AND FUTURE ECONOMY

Relevance of VR in the Current Economy:

Virtual Reality is already making significant impacts in a variety of sectors, from innovation to efficiency:

Healthcare: The technology of VR is revolutionizing medical training as surgeons practice critical procedures in a virtual, no-consequence environment. It is also used in therapy, such as exposure therapy for phobias and PTSD, and rehabilitation exercises associated with physical therapy.

Education and Training: VR has the potential to make education all the more interactive and engaging. From military simulations to professional training in areas such as engineering and aviation, the uses of VR are numerous.

RELEVANCE OF VR IN CURRENT AND FUTURE ECONOMY

Entertainment and Gaming: The gaming industry is perhaps the biggest adopter of VR, offering gamers an immersive feeling. It also finds other uses in virtual concerts, theme parks, and other such places that require special provision for entertainment.

Real Estate: VR enables house prospects to virtually tour houses, thereby making the task of selling the estate much easier without necessarily having to physically visit the site. This is very applicable in the present global atmosphere where movement is restricted.

Retail and E-commerce: VR improves the shopping experience with the help of virtual trials of the products that customers want to purchase, such as trying out clothes or seeing how furniture would look in their house.

RELEVANCE OF VR IN CURRENT AND FUTURE ECONOMY

Role of VR in the Future Economy:

The future of VR continues to expand, and some trends and development currently in view include:

Remote Work and Collaboration: VR is going to change the way people work remotely through the creation of virtual offices and meeting areas where employees can engage in a more interactive and immersive manner, which boosts productivity and communication.

Advanced Education: VR is furthering into advanced educational means, providing simulations and virtual classrooms that make learning even easier and more accessible to every student in the world.

RELEVANCE OF VR IN CURRENT AND FUTURE ECONOMY

Healthcare Innovations: Future developments in the field of VR will provide more advanced medical training and treatment for patients, like virtual surgery and remote diagnostics.

Enhanced Entertainment Experiences: More and more entertainment will incorporate VR, providing audiences with full immersion experiences in films, concerts, and other virtual events.

Tourism and Travel: VR will offer virtual travel experiences, allowing people to explore destinations without leaving their homes. This can promote tourism and cultural exchange, even when physical travel is limited.

SIGNIFICANCE OF LEARNING VR IN SCHOOLS

Importance of Learning VR in Schools:

Learning Virtual Reality (VR) in schools carries substantial significance, shaping both students' educational experiences and their future opportunities. Here are key points highlighting its importance:

1. VR ***enhances learning experiences*** by providing immersive and interactive educational experiences. Students can explore historical events, dive into complex scientific concepts, or virtually visit distant geographical locations, making learning more engaging and memorable.

SIGNIFICANCE OF LEARNING VR IN SCHOOLS

2. **Fosters Student Engagement using interactive content** keeping students motivated by turning passive learning into active exploration. Gamification in VR also boosts interest and participation, especially for younger students.

3. Preparing Students for ***Future Careers*** by developing their technical Skills using VR simulation for practice in their respective fields such as medicine, engineering etctera

4. VR also makes a pathway for students to dive and explore into ***VR career opportunities*** such as VR Hardware and software engineers

5 **. Collaboration and Communication-** VR enables students to collaborate in virtual environments, fostering teamwork and communication skills. Virtual labs and group projects can simulate real-world scenarios, encouraging students to work together to solve problems.

LAWS GUIDING THE USAGE OF VR

- ***1. Intellectual Property Rights:***

  Copyright: Protects original VR content, such as virtual worlds and characters.

  Trademark: Protects brand names and logos utilized in VR against unauthorized use.

  Patent: Protects new VR inventions and technologies.

  2. Privacy and Data Protection:

  Data Collection: VR systems collect a wide range of personal data; due care must be taken to establish rules for data protection.

  Consent Mechanisms: Transparent information to the users and consent by them about data collection practices are imperative.

  Data Security: Stringent measures must be taken to avoid data breaches.

LAWS GUIDING THE USAGE OF VR

- ***3. Safety and Liability:***

  User Safety: The physical and psychological safety of users while using VR applications.

  Liability: Legal responsibility for accidents or damages within VR.

  4. Content Regulation:

  Ethical Guidelines: The use of VR in a responsible manner to avoid injurious content.

  Age Restrictions: Apply age limits to safeguard the protection of minors against inappropriate VR content.

- ***5. Public Space Regulations:***

  Public Use: Ensure that the use of VR in public areas does not compromise safety or disturb the public.

CHALLENGES OF VR

1. ***Technical Limitations:***

   High-quality VR headsets are highly expensive, hence mostly inaccessible.

   VR experiences necessitate the requirement of a lot of computational power, hence requiring quite high-end hardware.

2. ***Health Concerns:***

   Because of visual-physical motion discrepancies, users may be afflicted with motion sickness.

   Long use can cause eye strain and other physical troubles such as pains in the neck and back.

CHALLENGES OF VR

3. Content Availability:

High-quality VR content is not readily available.

Creating VR content has been quite resource-intensive and requires a big enough investment.

4. ***Privacy and Security:***

VR systems collect a considerable amount of personal data.

There is a potential for surveillance risks where VR systems monitor user behaviour.

CHALLENGES OF VR

5. User Adoption

The complexity of VR technology contributes to a high barrier to learning by users.

Unfamiliarity and negative perception reduce social acceptance.

6. Ergonomics and Design

Ensuring the comfort of all users, including those with disabilities, is difficult to achieve.

It is complicated to design adaptable VR experiences for various physical environments.

DAY TO DAY APPLICATIONS OF VR

- 1. **Entertainment**

VR provides real-time animation and motion capture enabling creators to built interactive animated shows and live stream events easier and of high quality. Companies such as Flipside XR and Disney Movies VR has revolutionized the way media content is made nowadays.

- 2. **Education**

It is applied in the education sector by enabling students to learn in an immersive , experimental way from anywhere in the world. Companies like Tech Row enable students to go on a space mission to Pluto, explore Antarctica and experience the wonder of Machu Picchu; one can also be taken on a journey of the human body as a white blood cell.

DAY TO DAY APPLICATIONS OF VR

- **3. Gaming**

Used in the gaming industry to provide immersive game experiences in games such as "Beat Saber" and 'Half-Life-Alyx“

- **4. Automotive Industry**

Engineers and designer use VR to easily model and experiment the look and build of vehicles before commissioning expensive prototypes. Companies such as Honda and BMW have been using this for years to hold design and engineering reviews to find new alternatives to traditional clay models.

DAY TO DAY APPLICATIONS OF VR

- **5. Healthcare**

Medical professionals use VR for training and preparation whether as a junior doctor explaining diagnoses and treatment plans or as an orthopedic surgeon. Companies like Osso VR enable surgeons to interact with medical VR devices to practices surgery on virtual bodies. VR can also be used as therapy for treatment for mental health issues such as PTSDs and phobias.

- **6. Architecture and Real Estate**

Used to help architects and clients visualize building in 3D before construction and for virtual property tours in real estate. Companies like Stucco is using VR for home staging.

DAY TO DAY APPLICATIONS OF VR

- **7. Retail & E-commerce**

  VR enables virtual try-ons (makeup, clothing) and visualization of furniture or products in real-world settings.

- **8.Manufacturing & Maintenance**

  It guides technicians during equipment repairs with real-time instructions and overlays.

- **9. Marketing**

  VR is applied in campaigns for interactive advertisements, VR games, and apps like Pokémon Go.